Ludlings and Glides in Basque

ISHIZUKA, Masayuki
The University of Tokyo

This paper is an attempt to demonstrate that some glides in Basque belong to the onset, whereas others are part of the nucleus, drawing on a language game in Basque called *buhamien hizkuntza*. The Basque ludling involves the iterative infixation of <Vp> before every nucleus (V stands for a copy of the first vowel of the target nucleus). There are some vocoid sequences of rising sonority that are tautosyllabic, where the first vocoid is realized as a glide. The target vowel to be copied varies depending on whether the glide is part of the onset or the nucleus. The glide [j] is syllabified in the onset, making the second vocoid in the rising sequence the target. The glide [w], on the other hand, is attached to the nucleus and the first vocoid /u/ is reduplicated.

Keywords: Basque, ludlings, glides, syllable structure

1. Introduction*

In ludlings, or language games, phonological forms of words are modified in a systematic way, often for the purpose of making the message incomprehensible to outsiders (Laycock 1972; Davis 1994). Linguists have employed ludlings to argue for various elements of phonological representations (Vaux 2011). In this paper, I attempt to demonstrate that some glides in Basque belong to the onset, whereas others are part of the nucleus, drawing on a language game in Basque called *buhamien hizkuntza*.

In Section 2, I introduce some key concepts and terminology about ludlings and then illustrate how language game data have shed light on the representation of glides. Section 3.1 presents earlier documentations of ludlings in Basque and a ludling called *buhamien hizkuntza*. Section 3.2 gives some examples of vocoid sequences of rising and falling sonority in Basque in terms of syllabicity. I demonstrate that some rising sequences are tautosyllabic and thus contain glides in the variety under discussion. In Section 4, I show how

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glides in rising sequences are represented, based on the ludling forms of words involving these sequences.

2. Ludlings and the representation of glides

A prime example of a ludling is Japanese *babigo*, in which the sequence <bV> is inserted after each mora of a Japanese word (V is a copy of the vowel of the preceding mora). For instance, the *babigo* counterpart of *asita* 'tomorrow' is "a<ba>si<bi>ta<ba>". *Babigo* involves a common ludling process of expansion, where fixed or reduplicative segments are affixed to the natural language input. I refer to the affixed elements as *cryptemes*, following the practice of Frazier and Kirchner (2011).

Babigo is an example of an *iterative infixation ludling*, or IIL (Yu 2008), which is the most common type of language game (Frazier and Kirchner 2011). In IILs, a crypteme is infixed once per syllable or other unit smaller than the word. IILs and other expansion ludlings often employ reduplicative vowel segments in their cryptemes. As we will see in Section 3.1, all of the language games in Basque attested so far are IILs with the crypteme <Vp>, where V represents a copy of the following vowel.

Based on data from ludlings, researchers have debated whether a glide in a syllable is part of the onset or the nucleus. Barlow (2001) and Yip (2003), for example, hypothesize that there are two different representations for a sequence like [spju] among English speakers, one that syllabifies the glide in the onset and one that attaches it to the nucleus. Their argument hinges on a variation found in outputs of Pig Latin, a classic example of an English ludling. In Pig Latin, the onset of the first syllable is moved to the end of the word and then the crypteme [eɪ] is suffixed to the derived base. A sequence with a glide like [spju] has two different Pig Latin counterparts, [uspjeɪ] and [juspeɪ]. They claim that [j] is analyzed by speakers as the onset in the former case, whereas it belongs to the nucleus in the latter.

3. Ludlings and glides in Basque

3.1. Phonemes and syllable structure in Basque

Basque is an isolated language spoken in the Basque Country, a historical region located on the border between Spain and France. I begin this section by introducing some aspects of Basque phonemes and syllable structure that are relevant for understanding of ludlings and glides observed in this language.[1]

[1] See Hualde (2003) for a comprehensive description of Basque phonology.

The variety that will be examined in this article has five vowels /i e a o u/.[2] Some vowel sequences are tautosyllabic and others are not, as will be shown in 3.3. The consonantal segments in this variety include: voiceless and voiced plosives /p t k b d g/, fricatives /f z s x h/,[3] affricates /tz ts tx/,[3] nasals /m n/, and liquids /l r rr/.[4] It has also the phoneme /j/, which is typically realized as [ɟ]. As I will argue in the following sections, there are two phonemic glides: /w/, which only occurs in the second position of falling vocoid sequences, and /y/, which is found in both raising and falling sequences. See 3.4 for phonemic glides in falling sequences; drawing on ludling data, I will claim that [j], but not [w], is phonemic in raising sequences in Section 4. The alleged phoneme /y/ [j] could be analyzed as an allophone of /j/, as I will discuss in Section 5.

The only complex onsets allowed in Basque are those of *muta-cum-liquida* type (i.e., /p t k b g f/ + /l r/; *dl-* and *dr-* are not permitted). As for nuclei, Basque has no syllabic consonants, allowing only vowels and diphthongs to occupy the nucleus position. Diphthongs consist of glide-vowel sequences of falling and rising sonority (see Section 3.3 for details). Homorganic nasals, liquids /l r/, and sibilant fricatives /z s x/ are possible word-internal codas. Affricates /tz ts tx/ and stops /t k/ are also permitted word-finally, as well as the nasal /n/, liquids, and sibilants. In addition, a handful of consonant clusters are found in word-final codas.

3.2. Ludlings in Basque

Documentations of ludlings in Basque are briefly surveyed by Zuazo (2016). They are attested in at least three different places, which are remote from each other: Aramaio in Araba (Ormaetxea 2002), Lekeitio in Bizkaia (Euskaltzaindia 1999a), and Pagolle in Soule (Euskaltzaindia 1999b).[5] Although the names for ludlings differ between these three areas,[6] one fundamental rule is common to all the variants: the iterative infixation of <Vp> (where V stands for a copy of the following vowel) before every syllable nucleus.[7] For example, Euskaltzaindia's (1999a, 1999b) consultants report that they would say *epes topot*

[2] As far as possible, I represent phonemes and examples according to the standard orthography. The values of letters are mostly straightforward, except for *h j s x z* and some digraphs, which will be explained below.

[3] Orthographically, *z*, *s*, and *x* stand for the voiceless sibilant fricatives with different points of articulation, [s], [ʃ], and [ɕ], respectively (in varieties in Spain, *s*'s value is apico-alveolar [s̻]). *Tz*, *ts*, and *tx* represent the corresponding affricates [ts], [tʃ], and [tɕ], respectively.

[4] Varieties in Spain show the contrast between an alveolar tap *r* [ɾ] and an alveolar trill *rr* [r] intervocalically. In the other environments the contrast is neutralized, usually in favor of the trill. In the variety investigated here, which is spoken in France, orthographic *rr* are often realized as a voiced uvular fricative [ʁ]. The pronunciation of *r*, intervocalic or not, is variable between [ɾ] and [ʁ] in this variety. I represent intervocalic [ʁ]s as *rr* and other rhotics as *r*.

[5] The Basque Country is traditionally divided into seven provinces: Bizkaia, Gipuzkoa, Araba, Navarre, Labourd, Lower Navarre, and Soule. The first four are Spanish territories and the others belong to France.

[6] They are called *ahuntz erdera* (lit. 'goat Spanish') in Aramaio, *sasi-euskara* (lit. 'fake Basque') in Lekeitio, and *buhame lenguajia* (lit. 'Gypsy language') in Pagolle.

[7] In a large number of IILs, the crypteme placement is ambiguous (Frazier and Kirchner 2011). The crypteme in Basque ludlings can be described as either <Vp> (before every nucleus) or <pV> (before every first vowel). This ambiguity does not seem to affect the following discussion. See Frazier and Kirchenr (2011) for an analysis of ambiguous crypteme placement in terms of reduplication.

napai for *es tot nai* ‘I do not want’ in Lekeitio and *biphiaphar* for *bihar* ‘tomorrow’ in Pagolle. They further confirm that the ludlings served to cipher the message, making it incomprehensible to outsiders.

The data presented here were collected with the help of a Basque-speaking woman, who was born and lives in Gamarthe, France. Even though she does not actively play the game herself, she is quite familiar with it because her parents once told her about it. According to her, they called it *buhamien hizkuntza* ‘Gypsies’ language’ and would use it as adults so that their children could not understand their conversations. *Buhamien hizkuntza* is an IIL with a crypteme <Vp> inserted before every syllable nucleus. Some examples are given in (1).

(1) a. *ni* ‘I’ → n<ip>i
b. *bat* ‘one’ → b<ap>at
c. *tren* ‘train’ → tr<ep>en
d. *bost* ‘five’ → b<op>ost
e. *su.ge* ‘snake’ → s<up>u.g<ep>e
f. *zon.bat* ‘how many’ → z<op>on.b<ap>at

3.3. Vocoid sequences in Basque

Syllabicity in vocoid sequences is predictable in most cases (Hualde 2003: 32). Sequences of falling sonority are tautosyllabic and high vocoids normally surface as glides. The words in Table 1 are elicited from my consultant, who classifies them with undoubtedly bisyllabic words, such as *pago* ‘beech’ and *zango* ‘leg/foot’, confirming that the vocoid sequences in them are tautosyllabic.

Table 1 Vocoid sequences of falling sonority

ai	*gaixo* [gajɛo] ‘unhappy’	au	*hautu* [hawtu] ‘choice’
	jainko [ɟajnko] ‘god’		*haurtu* [hawrtu] ‘to become a child’
ei	*deitu* [dejtu] ‘to call’	eu	*euli* [ewli] ‘fly (insect)’
	heintsu [hejntʃu] ‘category’		*leundu* [lewndu] ‘to smooth’
oi	*goiko* [gojko] ‘in the high’	ou	-
ui	*eskuin* [eʃkujn] ‘right (dextral)’	iu	-

Sequences of rising sonority show considerable dialectal variation in their syllabicity (Hualde 2003: 32).[8] My consultant, who comes from a Low Navarrese area, judges most rising sequences to be heterosyllabic, as illustrated in Table 2.

[8] For example, in Gipuzkoan, Bizkaian, and some High Navarrese varieties, they are heterosyllabic, as in the variety investigated here. In some High Navarrese and Low Navarrese varieties, on the other hand, high vocoids in such sequences are realized as glides as in *mend*[ja] ‘the mountain’ or *esk*[wa] ‘the hand’ (Hualde 2003: 32–33).

Table 2 Vocoid sequences of rising sonority

ia	*a.gi.an* 'perhaps'	ua	*es.ku.a* 'the hand'
ie	*a.di.e.ra.zi* 'to express'	ue	*es.ku.en* 'the hands (GEN)'
io	*a.mo.di.o* 'love'	uo	*es.ku.o.rri.a* 'the handout'

Rising sequences in some words, however, do behave like falling sequences with regard to syllabicity in the elicited data. A tentative generalization can be made to the effect that /ue/ sequences that do not contain inflectional suffixes are tautosyllabic. They are found in the words shown in (2a). Note that *eguerdi* does have a morpheme boundary in its /ue/ sequence (*egu-erdi* lit. 'day-half') corroborating the idea that non-inflectional boundaries do not necessarily prevent the /ue/ sequence from syllabifying together as one nucleus. Inflectional suffixes with an initial /e/, on the other hand, are never treated as tautosyllabic with the preceding stem-final /u/, as illustrated in (2b).

(2) a. *e.guer.di* 'noon', *sal.bues.pen* 'exception', *suer.te* 'luck', *kon.tse.kuen.te* 'consequence', *se.kuen.tzi.a* 'sequence'
b. *es.ku.-en* 'hand-PL.GEN', *zu.-ek* 'you-PL', *du.-e.la* 'he.has-COMP', *ni.tu.-en* 'I.have-PST'

In addition, four words with an initial [j] are found in the elicited data: [j]*az* 'last year', [j]*aun* 'sir', [j]*on* 'John', and [j]*oana* 'Joan'. According to my consultant, they are tautosyllabic with the following vowel /a/ or /o/.

3.4. Phonemic and derived glides

As shown in 3.3, all falling sequences and some raising sequences are tautosyllabic, and they contain surface glides [j] or [w]. Are all of these glides in Basque predictable allophones of high vowel phonemes? At least one type of evidence suggests that some surface glides are phonemically consonantal and not merely positional variants derived from underlying vowels (see Levi 2011 for this distinction).

Consonant clusters resulting from case inflection are avoided with an epenthetic /e/, as shown in Table 3.

Table 3 Epenthetic vowel /e/

	bide 'road'	*bazterr* 'edge'
-z 'INST'	bide-z	bazterr-e-z
-ko 'LOCG'	bide-ko	bazterr-e-ko

The near minimal pair in (3) illustrates that it is lexically specified whether or not the second vocoid in falling sequences is consonantal. The glide [w] in *gau* 'night' is treated as

a consonant and thus the epenthetic vowel is inserted to break up the clusters. In contrast, there is no epenthesis between *lau* 'plain, plane' and the case suffixes because its [w] is phonemically a vowel, which is realized as a glide by position.[9] In the same vein, the glide [j] in *de*[j]-*e-z* is consonantal (4a), while [j] in *Gerezite*[j]-*ko* is vocalic (4b).[10]

(3) a. *gau* 'night': *gau-e-z gau* 'from night to night', *gau-e-ko* 'nocturnal'
b. *lau* 'plain, plane': *hitz lau-z* 'by plain words', *lau-ko* 'on the plane'

(4) a. *dei* 'call': *dei-e-z* 'by call'
b. *Gerezitei* 'HOUSE': *Gerezitei-ko* 'at Gerezitei'

The lexical difference between (3a, 4a) and (3b, 4b) shows that glides in Basque can be phonemic consonants, which raises another question as to whether the first vocoid in tautosyllabic rising sequences such as /ue/ and /ia/ is phonemic or derived. In the next section, I address this issue, drawing on ludling forms of words containing these sequences.

4. Basque glides in *buhamien hizkuntza*

As described in 3.1, the crypteme <Vp> in *buhamien hizkuntza* is iteratively infixed before every nucleus (V represents the first vowel of the target nucleus). The crypteme is inserted before each vowel in heterosyllabic rising sequences, as shown in (5).

(5) a. *zi.ur* 'sure' → z<ip>i.<up>ur
b. *a.mo.di.o.a* 'love' → <ap>a.m<op>o.d<ip>i.<op>o.<ap>a
c. *es.ku.a* 'the hand' → <ep>es.k<up>u.<ap>a
d. *du.e.la* 'that he has' → d<up>u.<ep>e.l<ap>a
e. *es.ku.en* 'of his hands' → <ep>es.k<up>u.<ep>en

[9] de Rijk (2008: 33) claims that *e*-epenthesis between a vocoid and the instrumental *-z* only occurs for monosyllabic stems ending in a falling sequence, such as *gau-ez* 'night-INST' and *dei-ez* 'call-INST'. The word *lau* 'plain, plane' is an exception to his generalization, which has led him to assume that it acts as a bisyllabic stem because of its origin from Latin *planum.* My consultant, however, counts the stem as monosyllabic, as shown in the ludling process in (5a), which suggests that it ends in a glide that is phonemically a vowel, i.e., /u/.

[10] My consultant is unsure about the possibility of *e*-epenthesis in the strings *dei-(e)-ko* and *Gerezitei-(e)-z*. There is an additional phonological process that suggests that the glide [j] in *Gerezitei* is in fact a consonant. Specifically, an epenthetic *r* is inserted between vowels in a hiatus resulting from case inflection, as exemplified by *eztei-r-en* 'wedding-GEN'. This process does not occur when *Gerezitei* is followed by the genitive *-en*: *Gerezitei-en* 'HOUSE-GEN', which might lead one to conclude that [j] in *Gerezitei* is consonantal and phonemic. To reconcile these seemingly contradictory facts, I assume here that the stems *dei* and *Gerezitei* each have two allomorphs, one with a phonemic, thus consonantal, glide /y/ and the other with the high vowel /i/ in the last position.

In contrast, vocoid sequences of falling sonority are tautosyllabic and thus <Vp> is infixed only before the first vowel, which is copied in the crypteme, as illustrated by the examples in (6).[11]

(6) a. *hitz lauz* 'by plain words' → h<ip>itz l<ap>auz
b. *hauts* 'break' → h<ap>auts
c. *eu.ri* 'rain' → <ep>eu.r<ip>i
d. *ai.re* 'air' → <ap>ai.r<ep>e
e. *go.ait* 'waiting' → g<op>o.<ap>ait
f. *sa.soin* 'season' → s<ap>a.s<op>oin
g. *a.pain.du* 'to make up' → <ap>a.p<ap>ain.d<up>u
h. *zai.la* 'difficult' → z<ap>ai.l<ap>a
i. *dau.tzut* 'I have it to you' → d<ap>au.tz<up>ut

As for tautosyllabic rising sequences, the target vowel to be copied will vary depending on whether the first vocoid is phonemic (and thus consonantal) or not. If the surface glide is an underlying consonant, it is in the syllable's onset, making the second vocoid the targeted first vowel of the nucleus. If it is derived from a high vowel, the first vocoid, realized as a glide, is exactly the first vowel to be duplicated.

Word initial [j] is a phonemic glide in this respect because it is the following /a/ and /o/ that are copied in the crypteme <Vp>, as shown in (7). The glide is syllabified in the onset and behaves just like other onsets.

(7) a. [j]*az.ko* 'from the last year' → [j]<ap>az.k<op>o[12]
b. [j]*aun* 'sir' → [j]<ap>aun
c. [j]*o.nek* 'John.ERG' → [j]<op>o.n<ep>ek
d. [j]*o.a.na* 'Joan' → [j]<op>o.<ap>a.n<ap>a

Conversely, the surface glide [w] in /ue/ sequences is a derived one: it is attached to the nucleus and the reduplication targets the first vowel /u/, as exemplified by the ludling forms in (8).

[11] Note that the consonantal status of the second vocoid in falling sequences has no impact on the ludling process, since it only refers to the first vocoid. Thus, the near minimal pair shown in (3) behave in the same way with regard to *buhamien hizkuntza*: the ludling counterparts of *gau* and *lau* is "g<ap>au" and "l<ap>au", respectively.

[12] My consultant had some doubt about the ludling form of *iazko* and also accepted "<ip>i.<ap>az.k<op>o" as a borderline case.

(8) a.	*e.guer.di*	'noon'	→ <ep>e.g<up>uer.d<ip>i
b.	*sal.bues.pen*	'exception'	→ s<ap>al.b<up>ues.p<ep>en
c.	*suer.te*	'luck'	→ s<up>uer.t<ep>e
d.	*kon.tse.kuen.te*	'consequent'	→ k<op>on.ts<ep>e.k<up>uen.t<ep>e

5. Conclusion

This study has found that the glides [j] and [w] in rising sequences behave differently in the ludling formation process in Basque, which suggests that they differ in the position in a syllable; the former is syllabified in the onset and the latter in the nucleus. Ludlings can be used to demonstrate the variation of glide representation not only among speakers but also system-internally.

The difference might result from a markedness constraint against a syllable without an onset. Note that none of the elicited glides [j] in rising sequences are accompanied by other consonants in the onset position, in contrast to the glides [w] in /ue/ sequences, which all occur in the second position of the syllable with a non-glide consonant in the onset (see examples in (7) and (8)). The data investigated here are too restrictive to test the hypothesis; a systematic examination is needed in this dialectal area, especially about loanwords with vocoid sequences such as *uigur* 'Uigur', *aguardient* 'spirits, liquor', *sardiant* 'sergeant', since most examples in the data are obvious borrowings from Romance languages.

In the discussion above, I have assumed that the phonemic glide /y/ is distinct from the phoneme /j/, which is typically realized as [ʝ] in the same environments in my consultant's speech. The glide [j], however, should probably be analyzed as an allophone of /j/. Generally, the phoneme /j/ has a continuant allophone [j] as well as [ʝ] in traditional Lower Navarrese (cf. Hualde 2003: 26, 28). With the development of standard Basque (*euskara batua*) in education and the media, orthographical *j* is more often pronounced with a palatal approximant or fricative in formal situations. If one considers the phonemic glide [j] as an allophone of /j/, the phoneme has two positional variants, i.e. [ʝ] in the onset and [j] in the coda. In this analysis, the initial approximant in the four words investigated in this papaer is a formal variant of /j/, for they are all spelled with initial *j*, except for *iaz* 'last year'.

Nevins and Vaux (2003) have suggested that English glide [j] is always part of the nucleus, and that the attested variation in ludlings results from two different rule variables. Their analysis has an advantage over one with variable representations if there are other language games in which speakers may treat the glide differently. The difference in representation proposed in this paper predicts that the glides will behave in the same way in any other Basque ludlings.

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Abbreviations

COMP	complementizer	IIL	iterative infixation ludling
ERG	ergative	LOCG	locative genitive
GEN	genitive	PL	plural
HOUSE	house name	PST	past tense
INST	instrumental		

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